

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-12 cancelled.

13. (new) A method of converting analog electric signals into a stream of binary data, comprising the steps of:

(a) Applying to a capacitor a reference voltage corresponding to a predetermined threshold value,

(b) Switching said capacitor to have applied to it an analog input signal directly, without performing "sample and hold" of said input signal,

(c) Generating a transition pulse when the analog input signal reaches said predetermined threshold value, without circuit switching at the input or the output until that moment,

(d) Subtracting from the input signal the fraction thereof that corresponds to said predetermined threshold value,

(e) Upon the occurrence of said transition pulse, simultaneously perform:

passive digital monitoring of the occurrence of said transition pulse, and

asynchronously reset said capacitor and start a new switching cycle,

(f) Digitally process transition pulses to generate a digital data stream corresponding to the digital value of the analog input signal.

14. (new) The method of claim 13, wherein the analog input signal consists of a finite amount of charge stored in a charge reservoir.
15. (new) A method of converting analog electric signals into a stream of binary data, comprising the steps of:
 - (a) Applying to a capacitor a reference voltage corresponding to a predetermined threshold value,
 - (b) Switching said capacitor to have applied to it an analog input signal directly, without performing "sample and hold" of said input signal,
 - (c) Generating a transition pulse when the analog input signal reaches said predetermined threshold value, without circuit switching at the input or the output until that moment,
 - (d) Upon the occurrence of said transition pulse, simultaneously perform:
passive digital monitoring of the occurrence of said transition pulse, and
asynchronously reset said capacitor and start a new switching cycle,
 - (e) Digitally process transition pulses to generate a digital data stream corresponding to the digital value of the analog input signal.
16. (new) The method of claim 15, wherein the input signal applied to the capacitor consists of a voltage signal and wherein the reference voltage is derived from the time-varying analog input signal itself.
17. (new) An analog to digital converter comprising a capacitor having a first terminal connected to an analog input signal and a second terminal connected

to a reference voltage corresponding to a predetermined threshold value,
 switching means to alternately switching the first terminal of said capacitor to the analog input signal for being charged and to a discharging terminal,
 digital means for generating a transition pulse when the analog input signal reaches said predetermined threshold value,
 digital control means to monitor the occurrence of each transition pulse and command said switching means, and
 counting means to generate a digital data stream corresponding to the digital value of the analog input signal.

18. (new) An analog to digital converter comprising a capacitor having a first terminal connected an analog input signal and a second terminal,
 means having an input connected to the analog input signal and an output connected to said second terminal of the capacitor, said means being arranged to determine successive reference voltages as a function of time, said reference voltages corresponding each to a predetermined threshold value,
 digital means for generating a transition pulse when the analog input signal reaches a predetermined threshold value,
 digital control means to monitor the occurrence of each transition pulse and command resetting of the capacitor, and

counting means to generate a digital data stream corresponding to the digital value of the analog input signal.